#9. 다음함수에서 $\frac{dy}{dx}$ 를 구하라.

(1) $\sin x + \cos y + xy = 1$

$$\cos x - (\sin y)\frac{dy}{dx} + y + x\frac{dy}{dx} = 0$$

$$\frac{dy}{dx} = \frac{\cos x + y}{\sin y - x}$$

(2)

$x = 3\cos\theta$ → $\frac{dx}{d\theta} = -3\sin\theta$

$y = 3\sin\theta + \theta^2$ → $\frac{dy}{d\theta} = 3\cos\theta + 2\theta$

$$1 = -3\sin\theta \frac{d\theta}{dx} \qquad 1 = (3\cos\theta + 2\theta)\frac{d\theta}{dy}$$

$$\frac{\frac{d\theta}{dx}}{\frac{d\theta}{dy}} = \frac{-\frac{1}{3\sin\theta}}{\frac{1}{3\cos\theta + 2\theta}} = -\frac{3\cos\theta + 2\theta}{3\sin\theta} = \frac{dy}{dx}$$

#10. 다음 함수에서 $\frac{dy}{dx}$ 를 구하라.